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7590 07/19/2007 Kevin D. McCarthy, Esq. Roach Brown McCarthy & Gruber, P.C. 1620 Liberty Building Buffalo, NY 14202			EXAMINER LEE, SHUN K	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/744,148

Applicant(s)

ELSTEIN ET AL.

Examiner

Shun Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/18/06, 3/16/07, & 5/2/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 8-16, 18-32, 34, 35 and 59-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8-16, 18-32, 34, 35 and 59-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 1, 8, 9, 14, 19, 20, 24, 35, and 60-62 are objected to because of the following informalities:

- (a) in claim 1, "imaging" on line 11 should probably be --acquiring-- (see "simultaneously acquiring" on line 5 in claim 1);
- (b) in claim 1, "a common aperture and in a common optical axis" on line 12 should probably be --said common aperture and in said common optical axis--;
- (c) in claim 8, "the scene" on line 10 (and again on line 11) should probably be --the electrical equipment--;
- (d) in claim 8, "visible true color imaging unit" on line 11 should probably be --true color visible imaging unit-- (see "said true color visible imaging unit" on line 20 in claim 8);
- (e) in claim 8, "a first visual image of the electric discharge" on lines 18-19 should probably be --a first visual image of the UV emittance-- (see "the first visual image of the UV emittance" on line 24 in claim 8);

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- (f) in claim 8, "said second image of the electrical equipment" on lines 20-21 should probably be --said visible image of the electrical equipment-- (see "a visible image of the scene" on lines 10-11 in claim 8);
- (g) in claim 8, "said first visual image of the SBUV emittance" on lines 26-27 should probably be --said first visual image of the UV emittance-- (see "the first visual image of the UV emittance" on line 24 in claim 8);
- (h) in claim 9, "the first image of the UV emittance" on lines 2-3 should probably be --the UV image of the electrical equipment-- (see "a UV image from the scene" on line 10 in claim 8);
- (i) in claim 9, "the second image of the electrical equipment" on line 4 should probably be --the visible image of the electrical equipment-- (see "a visible image from the scene" on lines 10-11 in claim 8);
- (j) in claim 14, "the solar blind UV image of the UV emittance of the electrical discharge" on lines 4-5 should probably be --said first visual image of the UV emittance-- (see "the first visual image of the UV emittance" on line 24 in claim 8);
- (k) in claim 19, "the first visual image of the solar blind UV emittance of the electrical discharge" on lines 1-2 should probably be --said first visual image of the UV emittance-- (see "the first visual image of the UV emittance" on line 24 in claim 8);
- (l) in claim 20, "said second true color image from the scene" on lines 20-21 should probably be --said visible image from the electrical equipment-- (see "a visible image of the scene" on lines 10-11 in claim 8);

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(m) in claim 24, "a UV intensifier" on line 3 should probably be --said image intensified SBUV image sensor-- (see "an image intensified SBUV image sensor" on lines 16-17 in claim 8);

(n) in claim 35, "a same aperture and in a common optical axis" on line 14 should probably be --said same aperture and in said common optical axis--;

(o) in claim 60, ", corona" on line 2 should probably be deleted (since corona is defined¹ as "a faint glow adjacent to the surface of an electrical conductor at high voltage" and is thus does not appear to be an electrical discharge);

(p) in claim 61, "System" on line 1 should probably be --Apparatus--;

(q) in claim 61, ", corona" on line 2 should probably be deleted (since corona is defined¹ as "a faint glow adjacent to the surface of an electrical conductor at high voltage" and is thus does not appear to be an electrical discharge); and

(r) in claim 62, ", corona" on line 2 should probably be deleted (since corona is defined¹ as "a faint glow adjacent to the surface of an electrical conductor at high voltage" and thus does not appear to be an electrical discharge).

Appropriate correction is required.

3. Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The specification discloses (first paragraph on pg. 20) that "Ultraviolet image sensor 13 may be of any of the types

¹ Merriam Webster's Collegiate Dictionary 10th Edition

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including but not limited to charge coupled devices, back illuminated charge coupled devices, and photocathode based devices such as image intensifier tubes, intensified charge coupled devices, and electron bombarded charge coupled devices". Thus BCCD and EBCCD does not appear to be an image intensified SBUV image sensor.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-4, 6, 8-16, 18-32, 34, 35, and 59-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant has not pointed out where the amended claims are supported, nor does there appear to be a written description of the claim limitation "a solar blind filter, image intensified sensor, and a UV photocathode" in the application as filed. The specification discloses (last paragraph on pg. 13) that "The UV image sensor is, according to one embodiment of the invention a fluorescent screen. According to another embodiment of the invention the UV image sensor is a UV solar blind image intensifier. Alternatively, the UV image sensor can be selected from among CCD (Charged Coupled Device), BCCD (Back illuminated Charged Coupled Device), EBCCD (Electron Bombarded Charged Coupled Device), ICCD (Intensified Charged Coupled Device using intensifier), MCP-PMT (Microchannel Plate Photomultiplier) having multianode or other position sensitive

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anode output, or the like, for producing first electronic signals describing the said UV image” and (first paragraph on pg. 20) that “Ultraviolet image sensor 13 may be of any of the types including but not limited to charge coupled devices, back illuminated charge coupled devices, and photocathode based devices such as image intensifier tubes, intensified charge coupled devices, and electron bombarded charge coupled devices”. Thus the specification teaches photocathode based devices such as image intensifier tubes, intensified charge coupled devices, and electron bombarded charge coupled devices. However, there does not appear to be disclosure of an UV photocathode in addition to an image intensified sensor in the specification as filed. Therefore, amended independent claims 1 and 35 (and claims dependent on claims 1 and 35) contain subject matter that was not described in the specification as filed.

Applicant has not pointed out where amended independent claims 1 and 8 (and claims dependent on claims 1 and 8) are supported, nor does there appear to be a written description of the claim limitation “true color” in the application as filed.

Applicant has not pointed out where amended dependent claim 18 is supported, nor does there appear to be a written description of the claim limitation “the image intensified SBUV image sensor is selected from among a group of sensors consisting of BCCD, EBCCD, ICCD, MCP-PMT having multianode, and MCP-PMT having position sensitive anode output” in the application as filed.

6. Claims 1-4, 6, 8-16, 18-32, 34, and 59-61 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable

one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant has not pointed out where amended independent claims 1 and 8 (and claims dependent on claims 1 and 8) are enabled, nor does there appear to be a written description of what is the visible "color" of UV to enable one skilled in the art to obtain "one combined and exactly registered true color visual image".

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4, 6, 8-16, 18-32, 34, and 59-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Amended independent claims 1 and 8 recite the limitation "one combined and exactly registered true color visual image" which is vague and indefinite since it is unclear what is the visible "color" of UV since UV is not in the visible spectral range.

9. Claims 1-4, 6, 35, 60, and 62 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are the relationships between "a solar blind filter, image intensified sensor, and a UV photocathode" as recited in amended independent claims 1 and 35. The dependent claims are considered indefinite on the basis of their dependency.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 8-16, 18-20, 22, 24, 27, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) in so far as understood.

It should be noted that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" (*Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)) if the prior art apparatus teaches all the structural limitations of the claim (MPEP § 2114). Thus, "electrical equipment" and "electrical discharge" were not given any patentable weight since "electrical equipment" and "electrical discharge" appear to be external to the claimed

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apparatus and does not appear to impose any additional structural limitations on the claimed apparatus.

In regard to claims **8-16, 18-20, 24, and 61**, Ross *et al.* disclose (Figs. 4 and 5) an apparatus for real time detecting, locating and visualizing in at least one of daytime outdoor illumination and equivalent artificial indoor illumination a non-visible radiation, comprising:

- (a) image acquiring means with two separate imaging units (50, 90, 52, 54, 106), for acquiring through a same aperture of the apparatus and along a common optical axis an image of an object (12), the image spanning at least a visible spectrum and a non-visible spectrum, and image acquiring elements such as beamsplitters (62, 64, 102) and optical lenses (*i.e.*, input lenses; column 4, lines 64-68) for simultaneously providing a first image from the scene into a non-visible imaging unit, and a second image from the scene into a true color visible imaging unit (52, 54, or passive optical element 106);
- (b) said non-visible imaging unit (50, 90) comprising: (b1) passive optical elements such as optical lenses (*i.e.*, input lenses; column 4, lines 64-68); (b2) passive optical elements such as a non-visible optical filter (70, 92) allowing transmittance of optical radiation in a non-visible spectral range only, and absorbing optical radiation in all other spectral regions (column 5, lines 1-9); and (b3) non-visible image providing means comprising a non-visible image sensor for receiving the optical radiation in the non-visible spectral range only, passed through said non-

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visible optical filter, and producing a first visual image of the non-visible radiation, being a non-visible spectral image;

(c) said true color visible imaging unit (52, 54, or passive optical element 106)

receiving said second image of the object (12) from the image acquiring means,

and producing a second true color visible image (column 5, lines 63-68),

representing visible background scenery of the object (12); and

(d) combining means (76, 55, beamsplitter 110) for receiving the first visual image of

the non-visible radiation from the non-visible imaging unit and the second true

color visible image from the visible imaging unit, and combining in real time by

overlaying said first visual image of the non-visible radiation over said second

visible image thereby producing one combined and exactly registered visual image

showing in real time the non-visible radiation in its exact position within the true

color background image of the object (12) and with no parallax.

The apparatus of Ross *et al.* lacks an explicit description that the beamsplitter is a dichroic beamsplitter, the non-visible imaging unit comprises a solar blind ultraviolet optical filter passing optical radiation in a solar blind UV spectrum range only through a first lens to an image plane at which an image intensified SBUV image sensor is located, wherein the SBUV image sensor comprises an image intensified SBUV image sensor containing a fluorescent screen, and the visible image unit comprises a CCD. However, Ross *et al.* also disclose (column 6, lines 11-17) that "The present invention may be implemented using any suitable real-time image generating apparatus capable of developing several spectrally different images of the same object which can be either electrically or optically combined into a

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single composite image that accentuates certain characteristics of the object which would otherwise be undetectable by the naked eye". Since Ross *et al.* do not disclose and/or require a specific imaging unit, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified imaging units of Ross *et al.* as one or more of the known conventional imaging units that would not require further description. Further, Dirscherl *et al.* teach (column 11, lines 46-58) to coat surfaces of optical elements with selective filter layers, in order to evaluate a desired spectral range. Dirscherl *et al.* also teach (column 5, line 60 to column 6, line 59; column 11, lines 1-45) to provide ultraviolet optics (1 in Fig. 1) and an UV solar blind image intensifier comprising suitable filters, photocathode, image amplifier, fluorescent screen, and CCD, in order to detect the self- or characteristic-emission of a flying body exhaust gas stream in the ultraviolet spectral range with sensor devices which are blind to artificial and solar UV (column 2, lines 17-26) and to unambiguously locate and recognize an object. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known conventional beamsplitter (e.g., a dichroic beamsplitter) as the unspecified beamsplitter, a known conventional non-visible imaging unit (e.g., comprising an UV photocathode, image intensifier, and fluorescent screen in combination with a suitable solar blind filter) as the unspecified non-visible imaging unit, and a known conventional visible imaging unit (e.g., comprising a CDD) as the unspecified visible imaging unit in the apparatus of Ross *et al.*, in order to accentuate certain object characteristics which would otherwise be undetectable by the naked eye.

Applicant is advised that should claim 8 be found allowable, claim 61 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). It should be noted that dependent claim 61 is directed to an apparatus. The intended uses of the apparatus (*i.e.*, "the electrical discharge is selected from partial discharge, corona and arcing" as recited in claim 61) are of no significance in determining patentability of an apparatus claim (MPEP § 2115). Further, the intended use of the apparatus does not appear to imply any additional structure and thus dependent apparatus claim 61 is substantial duplicate of apparatus claim 8.

In regard to claim **22** which is dependent on claim 8, Ross *et al.* also disclose (Figs. 4 and 5) electronic recording and/or displaying means (*e.g.*, 78) for recording and/or displaying the combined visual image.

In regard to claim **27** which is dependent on claim 8, Ross *et al.* also disclose (Figs. 4 and 5) stills camera means (78) for recording the combined visual image on a stills camera film (column 5, lines 28-31).

13. Claims 1-3, 6, 35, 60, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) and Kotze (GB 2 278 435 A) in so far as understood.

In regard to claims **1**, **2**, **6**, and **60**, Ross *et al.* in view of Dirscherl *et al.* is applied as in claims 8-16, 18-20, 24, and 61 above. The method of Ross *et al.* lacks an explicit

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description that the object is electrical equipment wherein the object characteristics that would otherwise be undetectable by the naked eye are UV emittance caused by electrical discharge (*e.g.*, partial discharge or arcing). However, Ross *et al.* also disclose (column 6, lines 11-17) that "The present invention may be implemented using any suitable real-time image generating apparatus capable of developing several spectrally different images of the same object which can be either electrically or optically combined into a single composite image that accentuates certain characteristics of the object which would otherwise be undetectable by the naked eye". Since Ross *et al.* do not disclose and/or require a specific object, one having ordinary skill in the art at the time of the invention would reasonably interpret the unspecified object of Ross *et al.* as any one of the known conventional objects that would not require further description. Further, Kotze teaches (second paragraph on pg. 1 to last paragraph on pg. 2) that characteristics (*e.g.*, partial discharge or arcing) of an object (*e.g.*, electrical equipment) that is undetectable by the naked eye can be determined by detecting non-visible radiation (*i.e.*, UV). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a known conventional non-visible imaging unit (*e.g.*, comprising an UV photocathode, image intensifier, and fluorescent screen in combination with a suitable solar blind filter) as the unspecified non-visible imaging unit in the method of Ross *et al.*, in order to accentuate certain object characteristics (*e.g.*, partial discharge or arcing on electrical equipment) which would otherwise be undetectable by the naked eye.

In regard to claim 3 which is dependent on claim 1, Ross *et al.* also disclose (Figs. 4 and 5) transferring the combined visual image into electronic recording and/or displaying means (*e.g.*, 78) for recording and/or displaying the combined visual image.

In regard to claims 35 and 62, Ross *et al.* in view of Dirscherl *et al.* and Kotze is applied as in claims 1, 6, and 60 above. The method of Ross *et al.* lacks two different non-visible imaging units. Dirscherl *et al.* teach (column 11, lines 1-45) to detect multiple spectral ranges such as UV, VIS, and IR, in order to unambiguously locate and recognize an object. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide two different non-visible imaging units (*e.g.*, an IR imaging unit and an SBUV imaging unit) in the method of Ross *et al.*, in order to unambiguously locate and recognize an object.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) and Kotze (GB 2 278 435 A) as applied to claim 3 above, and further in view of Applicant's Admitted Prior Art in so far as understood.

In regard to claim 4 which is dependent on claim 3, the modified method of Ross *et al.* lacks that the electronic recording and/or displaying means is a videotape. However, videotapes are well known in the art. For example, applicant admits (last paragraph on pg. 34 and third paragraph on pg. 39) as Prior Art that standard video equipment such as videotapes are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well

known videotapes in the modified method of Ross *et al.*, in order to obtain a record of the combined visual image.

15. Claims 21, 23, 28-32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) as applied to claims 3, 8, 22, and 35 above, and further in view of Applicant's Admitted Prior Art in so far as understood.

In regard to claim **21** which is dependent on claim 8, the modified apparatus of Ross *et al.* lacks that the combined visual image is obtained by at least one of arithmetic mixing, non-arithmetic mixing, luminance keying and chroma keying, for combining first and second electronic signals representing the first and second visible images, respectively. However, a combined visual image obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying is well known in the art. For example, applicant admits (last two paragraphs on pg. 23) as Prior Art that a combined visual image obtained by arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying is well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means of arithmetic mixing, non-arithmetic mixing, luminance keying or chroma keying in the modified apparatus of Ross *et al.*, in order to obtain a combined visual image.

In regard to claim **23** which is dependent on claim 22, the modified apparatus of Ross *et al.* lacks that the electronic recording and/or displaying means is a videotape. However, videotapes are well known in the art. For example, applicant admits (last paragraph on pg. 34 and third paragraph on pg. 39) as Prior Art that standard video

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equipments such as videotapes are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known videotapes in the modified apparatus of Ross *et al.*, in order to obtain a record of the combined visual image.

In regard to claims **28** and **29** which are dependent on claim 21, the modified apparatus of Ross *et al.* lacks an explicit description of a digital processing unit for processing at least one of the first and second electronic signals, for at least one of improving the contrast between the image of the UV emittance and the background scenery in the combined visual image, for the elimination of noise, the identification of UV emitters in the scene, and the capture of transient UV events in the scene.

Dirscherl *et al.* teach (column 5, lines 20-27) a digital processing unit for processing at least one of the first and second electronic signals, for at least one of improving the contrast between the image of the UV emittance and the background scenery in the combined visual image, for the elimination of noise, the identification of UV emitters in the scene, and the capture of transient UV events in the scene. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a digital processing unit in the modified apparatus of Ross *et al.*, in order to improve the contrast between the image of the UV emittance and the background scenery in the combined visual image, to eliminate noise, to identify UV emitters in the scene, and/or to capture transient UV events in the scene.

In regard to claim **30** which is dependent on claim 28, the modified apparatus of Ross *et al.* lacks that the processing unit is an analog processing unit. However, image

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processing units are well known in the art. For example, applicant admits (last two paragraphs on pg. 23) as Prior Art that analog processing units for image processing are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known image processing means (e.g., analog processing units) in the modified apparatus of Ross *et al.*, in order to process a combined visual image.

In regard to claims **31**, **32**, and **34** which are dependent on claim 28, the modified apparatus of Ross *et al.* lacks means for providing an alarm or means for initiating action (e.g., documentation of UV emitting events) as to the detection of SBUV emittance which is above a predefined threshold level. However, means for providing an alarm or initiating action are well known in the art. For example, applicant admits (last paragraph on pg. 28) as Prior Art that means for providing an alert or initiating action are well known in the art. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide well known means providing an alarm or initiating action in the modified apparatus of Ross *et al.*, in order to indicate or initiate corrective measures.

16. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) as applied to claim 24 above, and further in view of Baril *et al.* (US 5,535,053) in so far as understood.

In regard to claims **25** and **26** which are dependent on claim 24, the modified apparatus of Ross *et al.* lacks that the modified apparatus is in a monocular or binocular

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form. Baril *et al.* teach (column 1, lines 16-65) to provide a monocular or binocular display, wherein each display type has advantages for different applications. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a monocular or binocular display in the modified apparatus of Ross *et al.*, in order to obtain a display adapted for a desired application.

17. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ross *et al.* (US 3,748,471) in view of Dirscherl *et al.* (US 5,001,348) as applied to claim 8 above, and further in view of Willey (US 5,841,574) in so far as understood.

In regard to claim **59** which is dependent on claim 8, the modified apparatus of Ross *et al.* lacks that the image acquiring means comprises an optical lens which acquires SBUV and visible light beams from said common optical axis and transmits the SBUV light beams spanning the UV image towards the SBUV imaging unit, and a mirror in front of a central portion of said lens, for reflecting light in the visible spectrum towards the visible imaging unit. However, catadioptric-type optical systems are well known in the art. For example, Willey teaches (column 1, lines 7-25) to provide a catadioptric-type optical system for remote sensing and spectroscopy applications performed from satellites or spacecraft orbiting the Earth. Ross *et al.* also disclose (column 4, lines 3-9) viewing a forest from an aerial vantage point. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a catadioptric-type optical system in the modified apparatus of Ross *et al.*, in order to view a forest from an aerial vantage point.

Response to Arguments

18. Applicant's arguments filed 18 December 2006 have been fully considered but they are not persuasive.

Applicant argues that the cited prior art does not teach or suggest displaying the visible view in *true-color*. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (*i.e.*, displaying the visible view in *true-color*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It should be noted that amended independent claims 1 and 8 (and claims dependent on claims 1 and 8) recite "one combined and exactly registered true color visual image". Moreover, applicant should note that Ross *et al.* also disclose (column 5, lines 63-68) combining and (displaying) the *true-color* visible view with a visible image of the non-visible radiation.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Further as discussed above, Ross *et al.* also disclose (column 5, lines 63-68)

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combining and (displaying) the *true-color* visible view with a visible image of the non-visible radiation.

Applicant argues that the cited prior art does not teach or suggest in both the IR and SBUV spectral regions. Examiner respectfully disagrees. Dirscherl *et al.* teach (column 11, lines 1-45) to detect multiple spectral ranges such as UV, VIS, and IR, in order to unambiguously locate and recognize an object. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide two different non-visible imaging units (e.g., an IR imaging unit and an SBUV imaging unit) in the method of Ross *et al.*, in order to unambiguously locate and recognize an object.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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